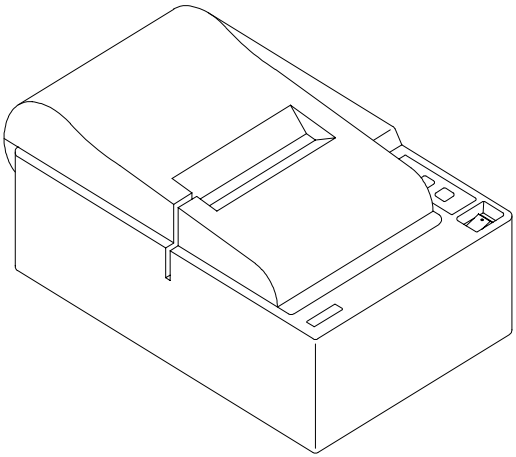
POSIFLEX™

PP3000 SERIES
POS PRINTER
USER'S MANUAL

Rev.B



CE

POSIFLEX™

WARRANTY AND EXCEPTIONS

Federal Communications Commission Radio Frequency Interference Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

For compliance with Federal Noise Interference Standard, this equipment requires a shielded cable.

This statement will be applied only for the printers marketed in U.S.A.

CE manufacturer Declaration of Conformity (EC Council Directive 89/336/EEC of 3 May 1989)

This product has been designed and manufactured in accordance with the International Standards EN50081-1/01.92 and EN50082-1/01.92 following the provisions of the Electro Magnetic Compatibility Directive of the European Communities as of May 1989

Warranty Limits

Warranty will terminate automatically when the machine is opened by any person other than the authorized technicians. The user should consult his/her dealer for the problem happened. Warranty voids if the user does not follow the instructions in application of this merchandise. The manufacturer is by no means responsible for any damage or hazard caused by improper application.

About This Manual

This manual is aimed to assist the user to utilize the PP3000 series which is a series of POS printers delicately designed to work with either serial or parallel interface connection. This manual covers both operational and technical aspects. This manual is revised to cover also the Epson emulation commands and some frequently asked questions.

The manufacturer of the PP3000 series heartily apologizes to the user for reserving the right to change or to modify this manual without notice due to the rapid and constant progress and improvement on science and technology. The user may always obtain the most up to date information through our web site: **http://www.posiflex.com.tw** .

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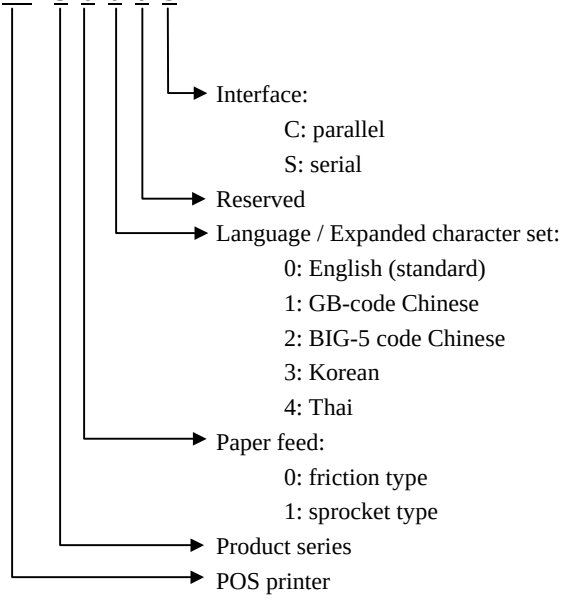
GENERAL DESCRIPTION

OVERVIEW

The PP3000 series POS printer is a stream-lined low profile 40 column 9 pin dot matrix printer designed to fit the PST system perfectly well and also for other POS printing applications. This printer utilizes a mechanism supplied from Star Micronics Co., LTD., and is compatible to the SP312 printers of Star Micronics in every aspects (with validation print). An optional version of this printer to simulate the EPSON command set is also available.

MODEL NUMBERS

EXAMPLE: PP - 3 0 0 0 S



FEATURES

- Dot matrix 9 pin printer head
- Bi-directional printing
- Friction type paper feed with optional sprocket paper feed
- 40 columns for 15.4cpi
- Accepts paper width 2.25/3/3.25 inches with adjustable paper guide (3.5 inches paper width for sprocket option)
- Print on ordinary paper or up to 3-fold carbonless copy paper
- DC 24V powered
- Selectable parallel or serial (RS232C) interface
  - Change from serial to parallel: change jumper settings; interface cable.
  - Change from parallel to serial: modification by manufacturer required.
- Optional serial interface of RS422
- 4 character sets supported: USA & Europe, IBM character set #1, IBM character set #2, Japan
- Versatile print function as inverted character printing and underlining set by software print commands
- About 4KB max. input buffer available enabling simultaneous printing and data receiving
- Peripheral unit drive circuit enables control with short circuit protection of external devices such as Cash Drawer
- Hardware/software hand shaking in serial interface through DIP switch selection
- Manual paper cut mechanism
- Validation printing function
- Dimension: friction type: 273mm(l) x 125mm(w) x 174mm(h)
  sprocket type: 400mm(l) x 155mm(w) x 180mm(h)
- Epson command emulation model also available

INSTALLATION

UNPACKING CONTENTS

- The printer
- Test ribbon cartridge
- Roll paper shaft
- Spacer for 3” paper roll (2 ea.)
- Spacer for 2.25” paper roll (2 ea.)
- E -ring (2 ea.)
- Test paper roll
- Springy hook plate (mounted)
- Rear hook
- Screws to hold springy hook plate (mounted) and rear hook
- Manual
- Power adapter with power cord (option)

BASIC MOUNTING

For POSiFLEX PST POS System

First install the springy hook plate and rear hook onto the metal bottom plate of the POS printer. Unscrew and re-install the springy hook plate in the way that the two springy hooks come out of the front edge of the metal bottom plate (they were pointing inward when shipped). Install the rear hook with its middle hook lock into the metal bottom plate first and screw the rear hook to the metal bottom plate (ref. Fig. 1). Connect the power cable and the printer cable (CCBLA-191 for serial interfaced printer or CCBLA-192 for parallel interfaced printer) in the way illustrated in the section of “CABLE CONNECTIONS”. Push open the battery cover of PST system and pass the cables through the opening beside the battery cover on the PST POS system and close the battery

cover again. (ref. Fig. 2, the example uses parallel interface) Aim the rear hook to the rectangular opening on the printer platform and push the printer down and forward till the two springy hooks click into the openings between the programmable keyboard and the printer platform in PST system. Consolidate the cables and connect them to the appropriate ports inside the back cover of PST system.

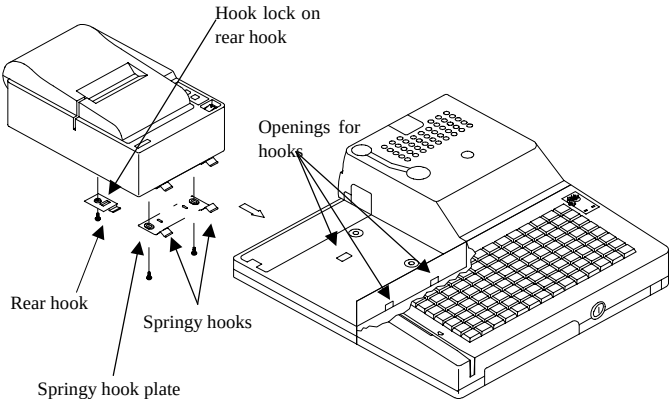


Fig. 1 Mounting printer to PST

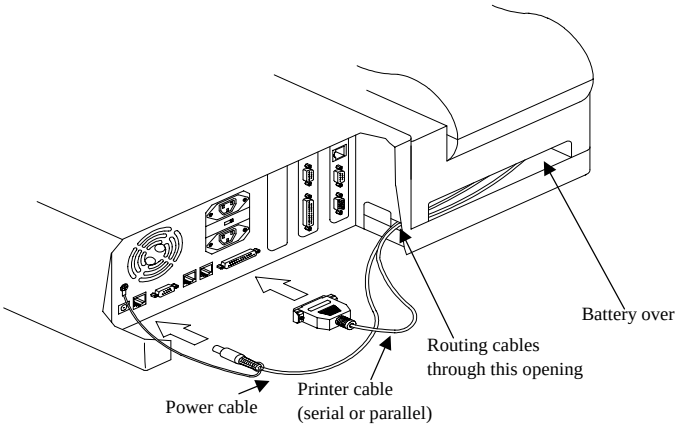


Fig. 2 Cable routing in PST application

For Other System

Install the printer on a stand or table which has a flat, even surface. Connect the power cord supplied for the power adapter (ref. Fig. 3) which varies according to destination region to a power outlet which is not used for any other electrical noise generating devices such as an electrical motor, etc.. Connect the printer cable as required.

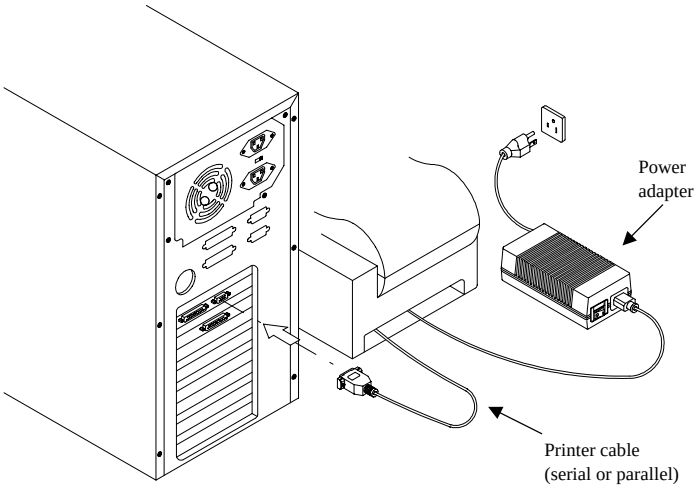


Fig. 3 Installation to other system

Cable Connections

The PP3000 can either be powered by the PST system or by a separate power adapter. The serial interface and parallel interface apply different interface cables. The following drawings demonstrate two examples of the cable connections to the POS printer PP3000 series.

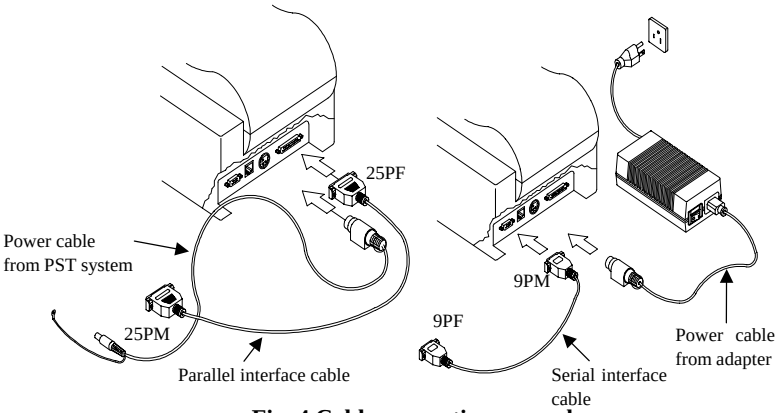


Fig. 4 Cable connection examples

LOADING RIBBON CARTRIDGE

- Turn the power for the printer off.
- Squeeze the two side walls of the top cover inward at the rear portion and raise and pull it back to remove it.

  Note: **Do not** touch the print head immediately after printing as it gets very hot.
- Turn the ribbon feed knob of the ribbon cartridge in the direction of the arrow to remove slack in the ribbon.
- Align the ribbon cartridge guide with the notched part of the frame. Insert the ribbon cartridge from that position till you hear a locking sound (ref. Fig. 5). Insert the ink ribbon between the print head and ribbon separator (ref. Fig. 6). At this time, make sure that the ink ribbon is not protruding beyond the ribbon separator.
- Turn the ribbon feed knob of the ribbon cartridge in the direction of the arrow to remove slack in the ribbon.
- Mount the front cover by reversing the procedure outlined in previous steps.

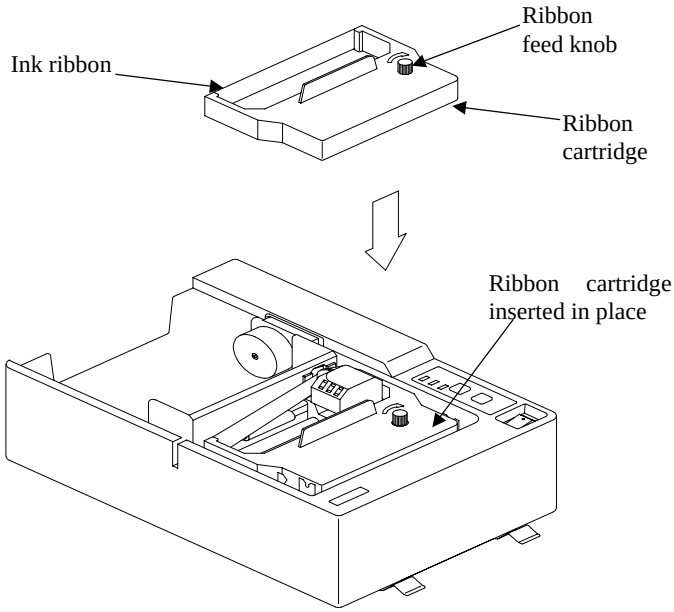


Fig. 5 Loading ribbon cartridge

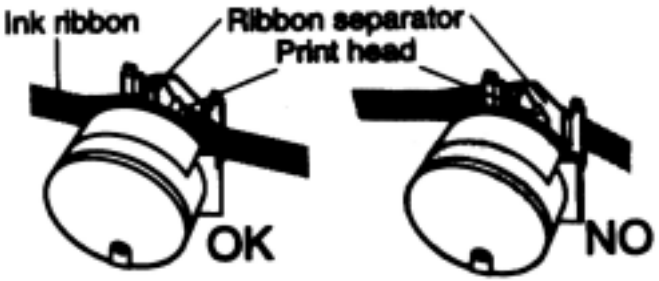


Fig. 6 Detail of ink ribbon at print head

LOADING PAPER

- Be sure to turn off the power for the printer.
- Press the two sides of the top cover near the rear part a little bit inward and lift the top cover up from the rear end and remove it.
- Set DIP switch 2-5 to match the width of the paper to use (refer to Fig. 17 on board layout for DIP switch setting).

DIP switch	ON	OFF
2-5	3.25 inches	2.25 inches
	3.0 inches	

(All the switches in the DIP switch array are factory preset to ON)

- Release the lock levers of both the left and right paper guides and push the paper guides outward to show the three sets of grooves on the paper guide shaft. Insert the E - rings into the grooves corresponding to the paper width (ref. Fig. 7). Push the paper guides inward to touch the E - rings and fix the lock levers leaving a 0.5mm gap between each paper guide and each edge of the paper to feed.
- Now, turn the power back on.
- Cut off the front edge of the roll paper perpendicularly. In case of roll paper with its front edge stuck with a label or so, cut off the part containing the label and then cut edge straight. If the label's adhesive is allowed to remain on the paper roll, it may stick onto the printer's rollers, causing paper misfeed.
- Hold the roll paper as shown in the illustration, then insert the top end of the paper beneath the paper guide as far as it will go and press the FEED switch on the control panel to feed the paper.
- When the front edge of the paper feeds out of the printer, release the FEED switch. Next, insert the roll paper shaft into the center hole of the paper roll, when the paper width is 2.25 or 3 inches, add the two spacers from each end

(the thinner spacer for 3" and the thicker for 2.25" both with the flat side facing inward) and put the whole assembly onto the roll paper shaft holder (ref. Fig. 8).

- Insert the top edge of the paper into the paper cut slot, then mount the top cover by reversing the procedure for removing the top cover in previous steps (ref. Fig. 9).

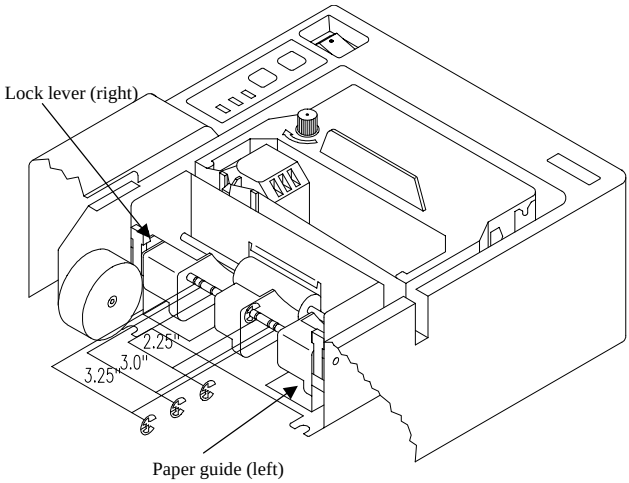
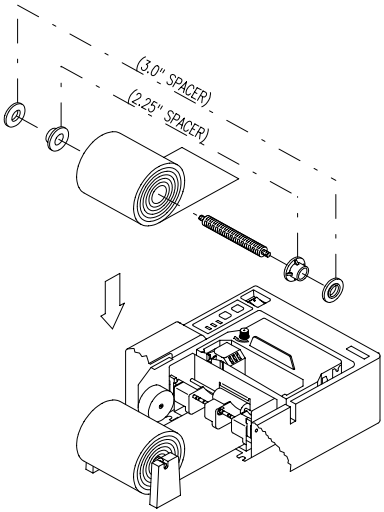


Fig. 7 Grooves on paper guide shaft



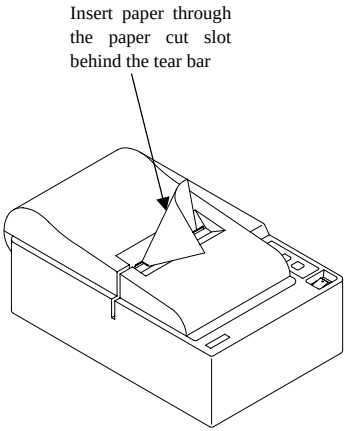


Fig. 8 Putting spacer to roll paper shaft **Fig. 9 Finish paper loading**

Removing The Roll Paper

Remove the top cover then cut off the paper near the rear of the paper guide and press the FEED switch to feed out the paper remaining in the unit. When the paper runs out, a buzzer will sound 4 times per cycle for 2 cycles.

Note 1. Remove the paper remaining in the printer by pressing the FEED switch (If you remove the paper by hand, the paper could be wrinkled or slip and cause a paper jam).

2. When the paper end mark appears on the paper, replace the roll paper before it runs out.

OPERATION GUIDE

FRONT PANEL

The positions of the below mentioned switches and LED's are indicated in Fig. 10.

"ON LINE" switch

Switches the printer between "ON LINE" and "OFF LINE" status. Whenever the printer switches between "ON LINE" and "OFF LINE", the buzzer gives one short beep ("ON LINE" and "OFF LINE" switching is possible only when paper is loaded in the printer).

"FEED" switch

When this switch is pressed and then released within 0.5 sec., the paper feeds one line. When this switch is held depressed for more than 0.5 sec., the paper feeds continuously (The above paper feed operation is possible for both "ON LINE" and "OFF LINE" modes).

"POWER" LED (green)

Lights when the power for the printer is on.

"ALARM" LED (red)

Lights when the paper is out. (If the paper is out, load a new roll and press the "ON LINE" switch.)

Flashes when a mechanical error (motor lock etc.) occurs. The buzzer will give one short beep followed by a long beep. Mount the top cover properly and press the "ON LINE" switch. If the buzzer still sounds and the "ALARM" LED flashes, this signifies that a mechanical error has occurred. Locate the cause of the error and turn the power of the printer off and back on again to reset the printer (In case of a mechanical error, this restart does not definitely clear up the data buffer).

"ON LINE" LED (green)

LED lit: Printer is ON LINE
LED off: Printer is OFF LINE
LED flashes: Validation printing mode is set.

When all LEDs light up simultaneously and the buzzer sounds continuously, a CPU error has occurred. In case of a CPU error, turn off the power then turn it on again. When turning off the power, the data will be cleared.

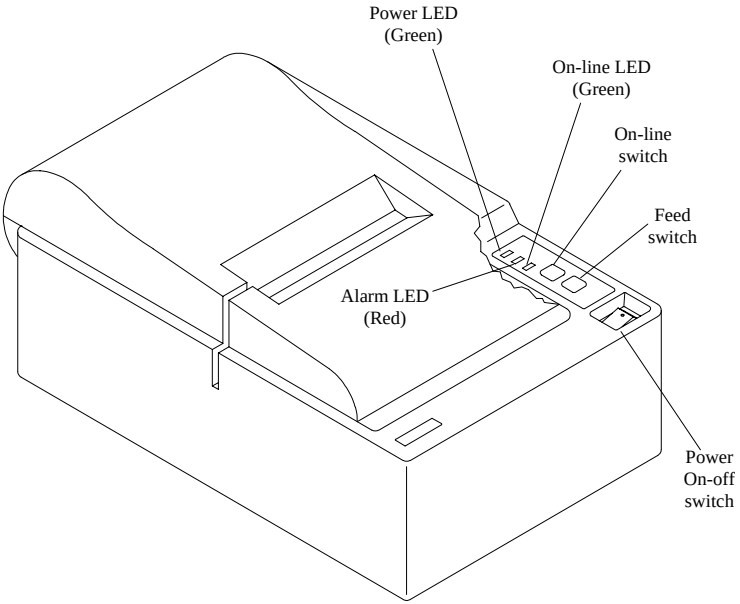


Fig. 10 Locations of switches and LED's

SELF PRINT TEST

"FEED" + "POWER ON" (Turn the power on while holding the "FEED" switch depressed)

Self-printing will be performed according to the version no., DIP switch settings, mode settings and the character order. When the "FEED" switch is held

continuously during self printing, only the characters will be printed out repeatedly.

A sample of the output of self print is given in Fig. 11.

Fig. 11 Self print sample

HEXADECIMAL DUMP MODE

"ON LINE" + "POWER ON" (Turn the power on while holding the "ON LINE" switch depressed)

Each of the signals sent from the computer to the printer will be printed out in hexadecimal code. This function allows you to check if a control code sent to the printer by the program being used is correct or not. The buzzer will sound once to indicate the printer is in hexadecimal dump mode. After the program has been run, the last line buffer should be flushed by pressing the "ON LINE" switch. To turn off the mode, it is necessary to turn off the printer completely.

CLEAR PRINT BUFFER

"FEED" + "ON LINE" + "POWER ON" (Turn the power on while holding both the "FEED" and "ON LINE" switches depressed)

This operation clears the printer buffer (The buzzer gives two short beeps). When the printer power is shut off, the data content could degenerate and become unusable. For this reason, when the printer power is turned off and there are some left-over in the data buffer or if there is any scramble up in data receiving, perform the above operation to clear the data in the data buffer. Note that the data in the buffer can also be cleared by control code <CAN>.

MICRO FEED

"ON LINE" + "FEED" (Press the "FEED" switch while holding the "ON LINE" switch depressed when the printer is "OFF LINE")

As a result of this mode, the paper will feed in very small increments.

VALIDATION PRINTING

This printer can print one line of validation printing as described below.

Operation Method

1. Open the top cover, pull the adjust lever one notch from standard position toward the operation panel side. When you cannot find standard position, push the lever as far as possible toward the rear, then pull it by 2 notches after having pressed it down. The lever is now in standard position.
2. Mount the top cover.
3. Set the printer for the validation print mode through control codes to the printer. In this instance, the buzzer gives two short beeps.
4. Make sure that the “ON LINE” LED is flashing.
5. Align the right edge of paper with the right end of the tear bar then insert the paper from the top in front of the tear bar.
6. The printer starts printing about 1 second after the paper is loaded.
7. When printing is completed, pull the paper upward and remove it from the printer.

Note: When printing a roll paper, it is recommended to adjust the lever at the same position as for validation printing.

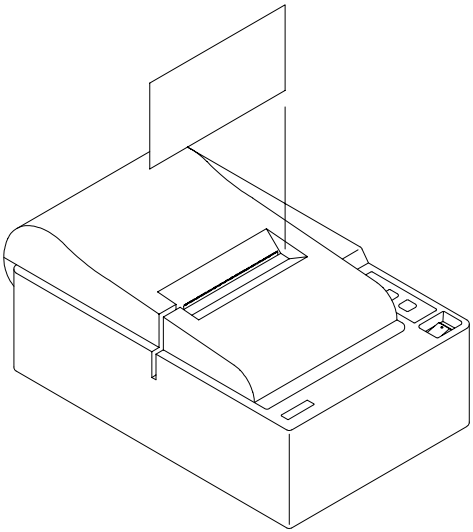


Fig. 12 Validation printing

Printing Format

Prints one line in 7 x 9 font normal printing.
32 columns (from the 5th to the 36th column)
Even if the setting for paper width is changed by the DIP switch, the 32-column format will not change.

Data Format

<GS> data <LF>

Paper Format

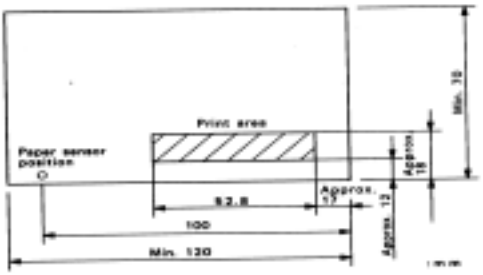


Fig. 13 Dimensional limits of Validation print

Other Considerations

- The FEED and ON LINE switches will not operate normally during validation printing.
- When the printer receives an immediate execution command for peripheral units during validation printing, it executes the command when the validation print mode is canceled.
- Modes in effect before the validation printing (such as emphasized printing, inverted printing, expanded printing and underlining) are invalid during validation printing. But these become valid again after validation printing.

- Data received before a <GS> code is printed out when the printer receives the <GS> code.

PERIPHERAL UNIT DRIVE CIRCUIT

A drive circuit for driving peripheral units (such as cash drawers) is featured in this printer. There is a modular connector of 6 pin telephone jack at the bottom back for this connection. The user shall prepare a cable with a modular 6 pin telephone plug referring to the circuitry given below.

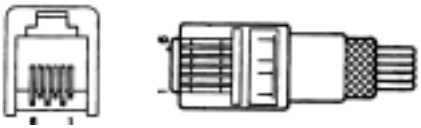


Fig. 14 Telephone jack and plug for peripheral unit drive

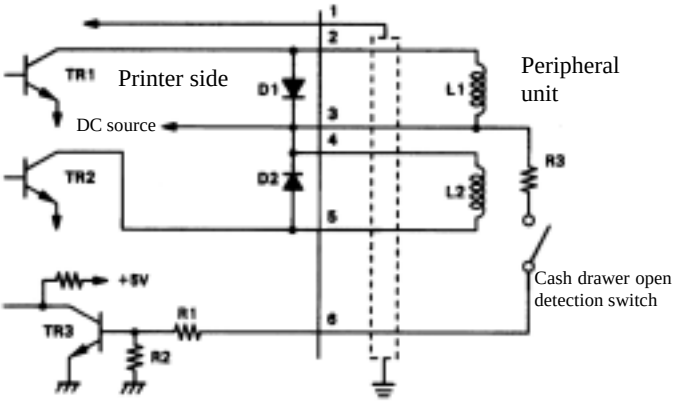


Fig. 15 Circuit diagram for peripheral unit drive

Notes:

1. Peripheral units 1 and 2 shall not be driven simultaneously (When the printer has been driven continuously, set the drive duty to maximum 20%).

2. The status of the cash drawer open detection switch is interpreted as bit 7 of the printer status data (Refer to Data Structure in Serial Interface).
3. Recommended resistance values of coils L1 and L2 are minimum 10Ω.
4. The pin assignment of this connector is compatible to Star SP-312 and SP-320 series.
5. The cable CCBLA-180 is used for this connector to connect to POSiFLEX cash drawer CR3100 or CR3200.

TECHNICAL BACKGROUND

BLOCK DIAGRAM

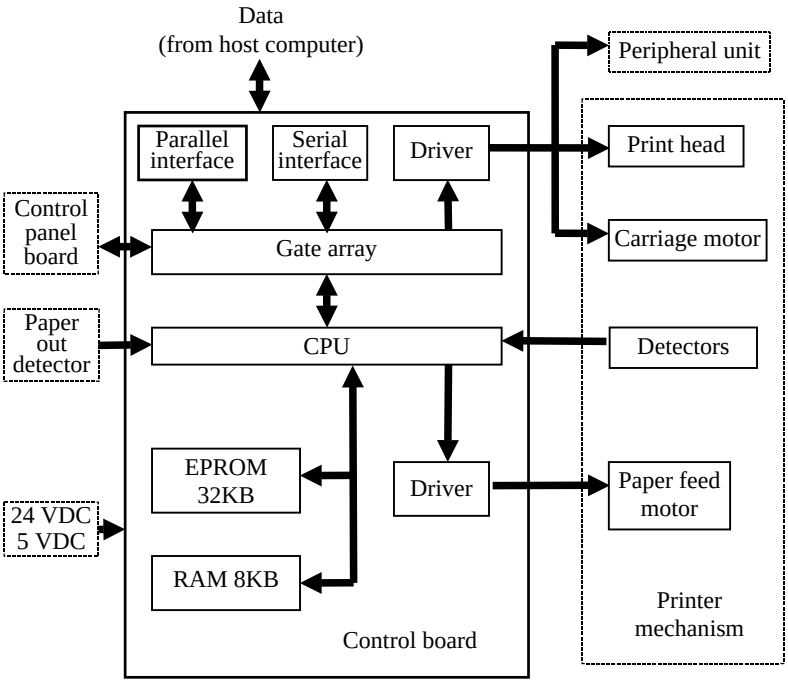


Fig. 16 Circuit block diagram

CIRCUITRY LAYOUT & CONNECTORS

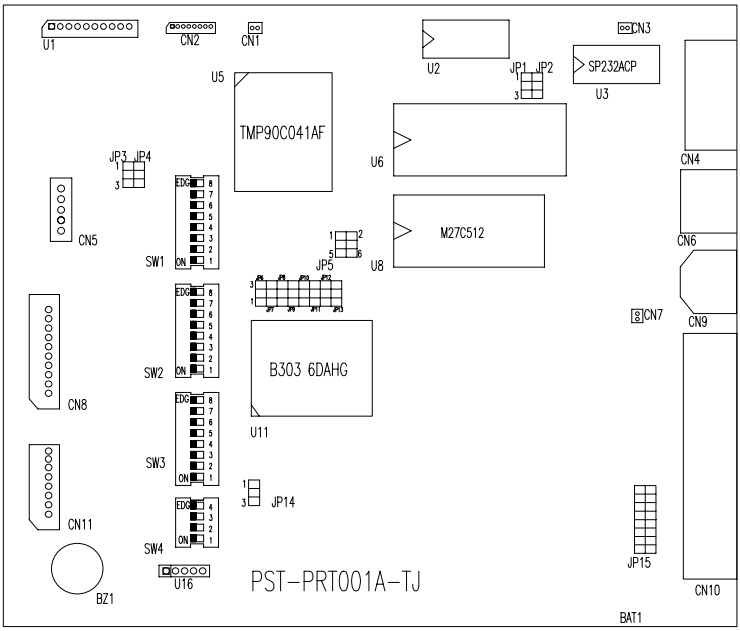


Fig. 17 Board layout

CN1 : Reserved

CN2 : Control panel connector

This **CN2** connector connects the control panel board through cable CCBLA-189.

CN3 : Power switch connector

This **CN3** is connected to cable CCBLA-188 to connect to the printer power switch.

CN4 : Serial interface connector

This connector is used to connect the host computer by **RS-232C** or **RS-422A**. The **MAX232A** has to be installed in **U3** to use RS-232 interface and **MC3451**

has to be installed in **U2** to use **RS-422A** interface. The details are described in the table below.

	U3	U2
RS-232C	Install **MAX232A**	**NOT** installed
RS-422A	**NOT** installed	Install **MC3451**

The cable used in RS-232C application is CCBLA-191 (a DB 9 male to DB 9 female cable).

CN5 : Reserved

CN6 : Peripheral drive connector
This connector uses cable CCBLA-180 to drive peripheral unit such as cash drawer.

CN7 : Paper detector connector
This connector uses cable CCBLA-190 to detect whether paper is set or out .When the paper is out, the buzzer will sound and the alarm LED will be flashing to remind the user.

CN8 : Printer control connector
This connector is connected to printer mechanism through a nineteen pin flex-cable, to drive the carriage motor.

CN9 : Printer power input connector
This is the power input connector, and the input voltage is 24V DC.

CN10 : Parallel interface connector
This connector uses cable CCBLA-077-2 (DB 25 male to DB 25 female cable) to connect to the host computer by parallel interface or CCBLA-192 to connect to parallel port (LPT 1) of POSiFLEX PST system.

CN11 : Print head drive connector
This connector connects to printer mechanism through a fourteen pin flex-cable to drive the mechanism printer head.

BZ1 : Printer buzzer
The printer buzzer will sound when printers error occurs.

U6&U8 : Font and BIOS socket
This socket is used to install BIOS and character font. Each type of printer requires different BIOS and character font. For example, the BIOS for friction type mechanism and the BIOS for sprocket type mechanism are different.

JUMPERS & SWITCHES

Jumper Setting (Interface Select)

INTERFACE	JP3 JP4	JP6-JP13	JP14	JP15
SERIAL PORT	OPEN	1-2 SHORT	1-2 SHORT	SHORT
PARALLEL PORT	2-3 SHORT	2-3 SHORT	2-3 SHORT	OPEN

When using either interface, the connector of the other interface must be disconnected. DIP SW3 and DIP SW4 have to be turned off when parallel interface is used.

Serial Interface Switch

DIP - SW1

Switch	Function	ON	OFF
1-1	Data transmission Rate (baud rate)	See next table	
1-2			
1-3			
1-4	Not used		
1-5	Hand shake	DTR mode	X-ON/X-OFF mode
1-6	Data bit	8-bit data	7-bit data
1-7	Parity check	No parity check	Parity check
1-8	Parity selection	Odd parity	Even parity

Data transmission rate (baud rate)

bps	1-1	1-2	1-3
150	**OFF**	**OFF**	**OFF**
300	**OFF**	**OFF**	**ON**
600	**OFF**	**ON**	**OFF**
1200	**OFF**	**ON**	**ON**
2400	**ON**	**OFF**	**OFF**
4800	**ON**	**OFF**	**ON**
9600	**ON**	**ON**	**ON/ OFF**

DIP-SW 2

Switch	Function	ON	OFF
2-1	International character set	See table below	
2-2			
2-3			
2-4			
2-5	Paper width for friction type	3.0 inch or 3.25 inch	2.25 inch
2-6	Not used		
2-7	Character code table	See table below	
2-8			

International character set

Switch	USA	France	Germany	England	Denmark	Sweden	Italy	Spain
2-1	**ON**	**ON**	**ON**	**ON**	**OFF**	**OFF**	**OFF**	**OFF**
2-2	**ON**	**ON**	**OFF**	**OFF**	**ON**	**ON**	**OFF**	**OFF**
2-3	**ON**	**OFF**	**ON**	**OFF**	**ON**	**OFF**	**ON**	**OFF**
2-4	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**

Switch	Japan	Norway	DenmarkII	Croatian	N.A.	N.A.	N.A.	N.A.
2-1	**ON**	**ON**	**ON**	**ON**	**OFF**	**OFF**	**OFF**	**OFF**
2-2	**ON**	**ON**	**OFF**	**OFF**	**ON**	**ON**	**OFF**	**OFF**
2-3	**ON**	**OFF**	**ON**	**OFF**	**ON**	**OFF**	**ON**	**OFF**
2-4	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**

Character code table

Switch	U.S.A. & Europe	IBM #1	IBM #2	Japan
2-7	**ON**	**ON**	**OFF**	**OFF**
2-8	**ON**	**OFF**	**ON**	**OFF**

DIP-SW3

Switch	Function		ON	OFF
3-1				
3-2	Not used			
3-3	Control code CR		Invalid	Valid
3-4	When turning the power on.	DC1,DC3 mode	Select	Deselect
		Addressable mode	Deselect	Select
3-5	Setting the paper feed length		1/6 - inch	1/8 - inch
3-6	Setting the buffer size		4 K-bytes	256 bytes
3-7	Not used			
3-8	Paper out detection function		Valid	Invalid

DIP-SW 4

MODE / **DIP SW**	DC1, DC3 invalid	Addressable mode	DC1, DC3 valid
4 - 1	ON	Refer to next table for switch setting and address selection	OFF
4 - 2	ON		OFF
4 - 3	ON		OFF
4 - 4	ON		OFF

Address selection for addressable mode:

SW	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**#8**	**#9**	**#10**	**#11**	**#12**	**#13**	**#14**
4 - 1	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON
4 - 2	ON	OFF	OFF	ON	ON	OFF	OFF	ON	ON	OFF	OFF	ON	ON	OFF
4 - 3	ON	ON	ON	OFF	OFF	OFF	OFF	ON	ON	ON	ON	OFF	OFF	OFF
4 - 4	ON	ON	ON	ON	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF

Note: The addressable mode is valid only when an optional **RS-422A** serial interface is mounted.

a) When DIP SW4-1 through 4-4 are all ON (DC1/DC3 invalid mode)
DC1 and DC3 codes are invalid.

b) When DIP SW4-1 through 4-4 are OFF (DC1/DC3 valid mode)
DC1: Select
DC3: Deselect

When the printer receives the DC3 code, it throws away data until it receives the DC1 code. (all the data between the DC3 and DC1 code)

DTR is always ready.

c) Other settings (addressable mode)
DC1 *n*: selects *n* (address)
DC3: Deselect

When the printer receives the DC3 code, it throws away data until it receives the DC1 *n* code (with the n matching the printer's own address).

DTR is always ready.

Note : DIP sw1-4 select the select/deselect state for the printer when the power is first switched on.

Parallel Interface Switch

DIP-SW1

Switch	Function	ON	OFF
1-1			
1-2	Not used		
1-3	Control code CR	Invalid	Valid
1-4	Not used		
1-5	Setting the paper feed length	1/6 - inch	1/8 - inch
1-6	Setting the buffer size	4 K-bytes	256 bytes
1-7	Not used		
1-8	Paper out detection function	Valid	Invalid

DIP-SW 2

Switch	Function	ON	OFF
2-1	International character set	See table below	
2-2			
2-3			
2-4			
2-5	Not used		
2-6			
2-7	Character code table	See table below	
2-8			

International character set

Switch	USA	France	Germany	England	Denmark	Sweden	Italy	Spain
2-1	**ON**	**ON**	**ON**	**ON**	**OFF**	**OFF**	**OFF**	**OFF**
2-2	**ON**	**ON**	**OFF**	**OFF**	**ON**	**ON**	**OFF**	**OFF**
2-3	**ON**	**OFF**	**ON**	**OFF**	**ON**	**OFF**	**ON**	**OFF**
2-4	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**

Switch	Japan	Norway	DenmarkII	Croatian	N.A.	N.A.	N.A.	N.A.
2-1	**ON**	**ON**	**ON**	**ON**	**OFF**	**OFF**	**OFF**	**OFF**
2-2	**ON**	**ON**	**OFF**	**OFF**	**ON**	**ON**	**OFF**	**OFF**
2-3	**ON**	**OFF**	**ON**	**OFF**	**ON**	**OFF**	**ON**	**OFF**
2-4	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**

Character code table

Switch	U.S.A. & Europe	IBM #1	IBM #2	Japan
2-7	**ON**	**ON**	**OFF**	**OFF**
2-8	**ON**	**OFF**	**ON**	**OFF**

DATA STRUCTURE IN SERIAL INTERFACE

DTR Mode

This mode is accessed when the DIP switch 1-5 is ON. Signals are controlled using the DTR line as BUSY flag. If a printer errors do not occur after the power is turned on, the DTR signal line changes to “SPACE”. When the host computer confirms that the DTR signal line is set to “SPACE”, the host computer sends the data text via the RXD signal line to the printer. Also, the printer will set the DTR signal line to “MARK” when the empty space in the data buffer is below 256 bytes. After the host computer detects that the DTR signal line is at “MARK”, transmission of the data text is stopped. In this instance, data can still be received up until the data buffer becomes completely full. When the empty space in the data buffer is increased following printing (when the data in the data buffer is reduced to 256 bytes or less), the printer sets the DTR signal line to “SPACE”.

Status

Bit position	Definition	Level
b0	Vertical parity error	1:error
b1	Framing error	1:error
b2	Mechanical error	1:error
b3	Paper empty	1:empty
b4	Constantly set at “0”	0
b5	Buffer empty	1:empty
b6	Buffer overflow	1:overflow
b7	Cash drawer open detection switch high level	switch is set to ON

Paper out

When the “paper out” detector senses the end of the paper, the printer stops printing after printing a maximum of two lines or on feeding the paper. Immediately after a “paper out” condition is detected, the printer sets to “OFF LINE” and the DTR changes to “MARK”. To reset the printer after a “paper

out", load paper into the printer and press the "ON LINE" switch to set the printer to "ON LINE".

Mechanical error

Mechanical errors are detected when the motor locks or else and the unit will not print. Immediately after a mechanical error occurs, the printer sets the DTR to "MARK" and then sets the printer to "OFF LINE". To cancel a mechanical error, close the front cover properly and press the "ON LINE" switch. If the buzzer sounds and the "ALARM" LED flashes at this time, then locate the cause of the error and turn the power for the printer off and back on again to reset the printer.

Framing error

A framing error occurs when "SPACE" is detected at the stop bit. When a framing error or a vertical parity error occurs for the data which is received, the printer prints out a "?" mark to indicate that the error occurred.

Cash drawer open detection switch

When pin 6 of the peripheral unit drive circuit connector is set "HIGH", status bit 7 becomes "1".

X-ON/X-OFF Mode

This mode is accessed when the DIP switch 1-5 is OFF. If printer errors do not occur after the power is turned on, the printer outputs an X-ON (DC1 by control code; 11H by hexadecimal data) signal on the TXD signal line of the printer which sends it to the host computer. When the host computer receives the X-ON signal, the host computer transmits the data to the RXD signal line of the printer. If data text is not sent from the host computer (even after transmitting the X-ON signal to the host computer), the printer outputs an X-ON signal at 3 second intervals until the printer receives data. The printer starts outputting an X-OFF (DC3, 13H) signal when the empty space in the buffer reduces below 256 bytes. When the host computer receives the X-OFF signal, it halts output of data (however, the printer can continue receiving data until the buffer becomes

completely full). Output of the X-ON signal is resumed when the data in the buffer is printed out and drops to below 256 bytes.

Status

Bit position	Definition	Level
b0	Vertical parity error	1:error
b1	Framing error	1:error
b2	Mechanical error	1:error
b3	Paper empty	1:empty
b4	Constantly set at “0”	0
b5	Buffer empty	1:empty
b6	Buffer overflow	1:overflow
b7	Cash drawer open detection switch high level	switch is set to ON

Paper out

When the “paper out” detector senses the end of the paper, the printer stops printing after printing a maximum of two more lines or on feeding the paper. The printer will set the DTR to “MARK” and set the printer to OFF LINE five seconds after a “paper out” condition is detected. To reset the printer after a “paper out”, load a new roll of paper into the printer and press the ON LINE switch to set the printer ON LINE.

Mechanical error

Mechanical error occurs when the motor locks or else and printing stops. After the error occurs, the printer outputs an X-OFF signal and stops printing. The printer sets the DTR signal to “MARK” and sets to “OFF LINE” five seconds after a mechanical error occurs. To reset the printer after a mechanical error occurs, close the top cover properly and press the “ON LINE” switch. If a buzzer sounds and the “ALARM” LED flashes at this point, locate the cause of the error and turn the power off and then back on to reset the printer.

Framing error

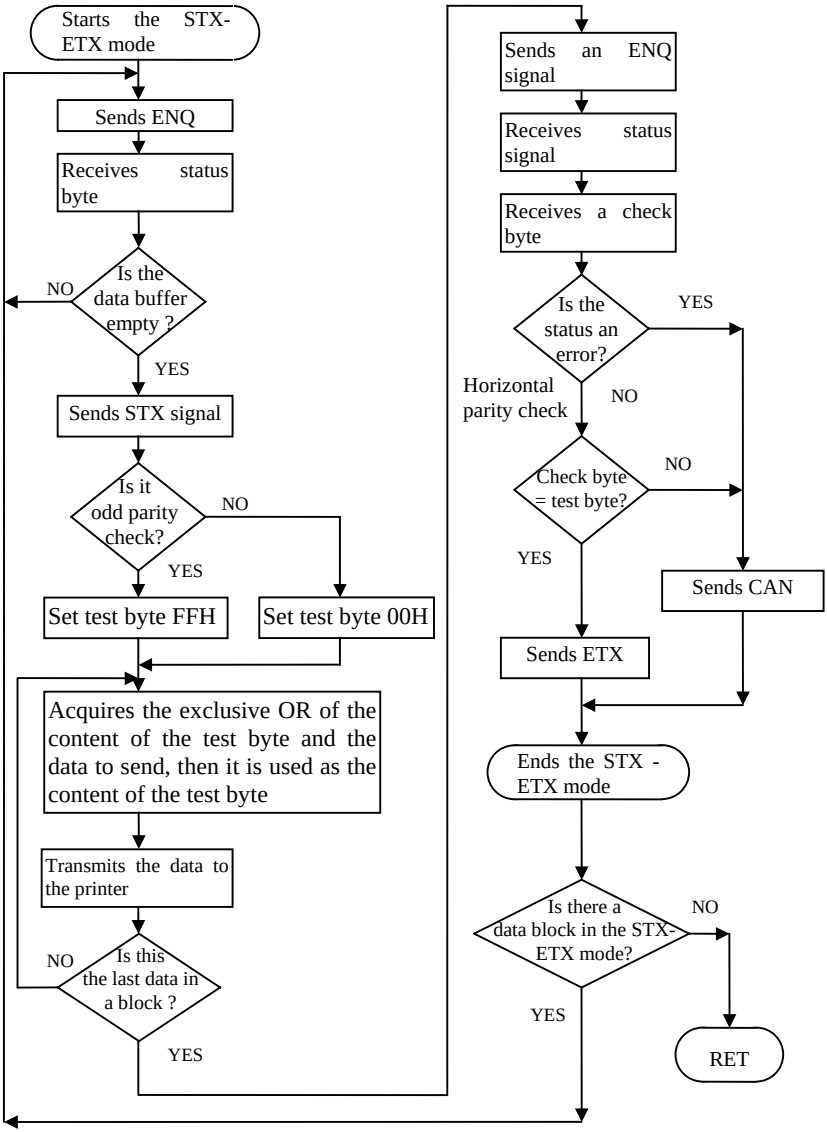
A framing error occurs when “SPACE” is detected at the stop bit. When a framing error or a vertical parity error occurs for the data which is received, the printer prints out a “?” mark to indicate that the error occurred.

Cash drawer open detection switch

When pin 6 of the peripheral unit drive circuit connector is set at “HIGH”, status bit 7 becomes “1”.

STX-ETX Mode

This mode is accessed from whichever DTR mode or X-ON/X-OFF mode. To set this mode, the data buffer must be empty. The host computer sends an “ENQ” code to the printer and acknowledges the printer status. Then, the host computer checks if the printer buffer is empty. After the host computer detects that the buffer is empty, a STX code and data are transmitted. After 1 block of data is transmitted, the host computer sends an ENQ code to the printer and then receives the printer status and check byte (horizontal parity for the printer). At this point, the host computer performs a status and horizontal parity check. When the host computer determines that there was no error, it transmits an ETX code which serves as end text code. After the printer receives the ETX code, data in the data buffer is printed out. If an error occurs, a CAN code is transmitted by the host computer (In this instance, the data which was previously sent to the buffer is cleared, thus, the host computer must retransmit the same data to the printer). A flowchart of this operation is illustrated as the following on next page.


Starts the STX-ETX mode
Sends ENQ
Receives status byte
Is the data buffer empty ?
NO
YES
Sends STX signal
Is it odd parity check?
NO
YES
Set test byte FFH
Set test byte 00H
Acquires the exclusive OR of the content of the test byte and the data to send, then it is used as the content of the test byte
Transmits the data to the printer
Is this the last data in a block ?
NO
YES
Sends an ENQ signal
Receives status signal
Receives a check byte
Is the status an error?
YES
Horizontal parity check
NO
Check byte = test byte?
NO
YES
Sends CAN
Sends ETX
Ends the STX - ETX mode
Is there a data block in the STX-ETX mode?
NO
YES
RET

MAIN SPECIFICATION

INTERFACE

Parallel Interface

25 pin Female D-sub connector

Pin #	Signal Name	I/O	Function
1	$\overline{\text{STROBE}}$	I	Signals when data is ready to be read. Signal goes from HIGH to LOW (for at least 0.5 microsec.) when data is available.
2	DATA 0	I	This signal provides the information of the first bit (LSB) of parallel data. The signal is at HIGH level for a logical 1 and at a LOW level for a logical 0.
3	DATA 1	I	This signal provides the information of d1 the second bit of parallel data. The signal is at HIGH level for a logical 1 and at a LOW level for a logical 0.
4	DATA 2	I	This signal provides the information of d2 the third bit of parallel data. The signal is at HIGH level for a logical 1 and at a LOW level for a logical 0.
5	DATA 3	I	This signal provides the information of d3 the fourth bit of parallel data. The signal is at HIGH level for a logical 1 and at a LOW level for a logical 0.
6	DATA 4	I	This signal provides the information of d4 the fifth bit of parallel data. The signal is at HIGH level for a logical 1 and at a LOW level for a logical 0.
7	DATA 5	I	This signal provides the information of d5 the sixth bit of parallel data. The signal is at HIGH level for a logical 1 and at a LOW level for a logical 0.
8	DATA 6	I	This signal provides the information of d6 the seventh bits of parallel data. The signal is at HIGH level for a logical 1 and at a LOW level for a logical 0.

9	DATA 7	I	This signal provides the information of d7 the eighth bit (MSB) of parallel data. The signal is at HIGH level for a logical 1 and at a LOW level for a logical 0.
10	$\overline{\text{ACK}}$	O	A 9 microsecond LOW pulse to acknowledge receipt of data.
11	BUSY	O	When this signal goes LOW, the printer is ready to accept data. When the printer is in one of the conditions below, HIGH is set: 1. Data being entered 2. Off line 3. Error condition
12	PAPER END	O	This signal is normally LOW. It will go HIGH if the printer runs out of paper.
13	SELECTED	O	This signal is HIGH when the printer is on-line.
14	N/C		
15	$\overline{\text{ERROR}}$	O	This signal is normally HIGH. This signal goes LOW to signal that the printer cannot print due to an error condition
16	N/C		
17	$\overline{\text{SLCTIN}}$	I	When this signal goes LOW, the printer is selected to work.
18	GND		Ground
19	GND		Ground
20	GND		Ground
21	GND		Ground
22	GND		Ground
23	GND		Ground
24	GND		Ground
25	GND		Ground

Serial Interface

9 pin Female D-sub connector

Pin #	Signal Name	I/O	Function
1	DCD	O	Data carrier detect
2	TXD	O	Transmit data
3	RXD	I	Receive data
4	N.C.		
5	GND		Ground
6	RTS	O	Request to send. This is always “SPACE” when the printer is turned on.
7	N.C.		
8	DTR	O	Data terminal ready. This signal changes to PACE” when the printer is ready to receive data.
9	N.C.		

Peripheral Unit Drive

6 pin telephone jack

Pin #	Signal Name	I/O	Function
1	Chassis GND		To connect the shield of cable between printer and the peripheral device
2	L1 Drive	O	Supplies a low trigger pulse to drive the circuitry L1 with a diode protection. This shall not be driven together with L2 at the time.
3	SW Sense	I	To connect through diode and resistor to +24VDC to detect the status of cash drawer open detection switch.
4	+24 V DC	O	Connected to +24VDC supplied by the printer.
5	L2 Drive	O	Supplies a low trigger pulse to drive the circuitry L1 with a diode protection. This shall not be driven together with L2 at the time.
6	GND	O	

POWER SUPPLY

PIN ASSIGNMENT OF 3 PIN JACK:

PIN	DEFINITION
1	+24 V
2	GND
3	N.C.
CASE	CHASSIS GND

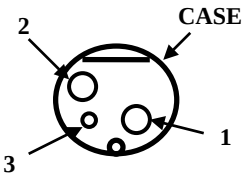


Fig. 18 Pin layout of power plug

★**IMPORTANT:** To unplug this connector, one should pull the outer sleeve of the power plug instead of pulling the power cable itself. This connector is equipped with a lock mechanism, pulling the cable itself without unlocking by pulling the sleeve will cause certain damage to the connector.

OPTION LIST

- Inked ribbon cartridge
- Paper roll

FONT MATRICES

The printed format of the fonts used is determined by the character size which is defaulted as 15 CPI yet can be changed to 12 CPI or 8 CPI through command received by the printer. The font format and dimension definition of each character size is given in Fig.19 and Fig. 20.

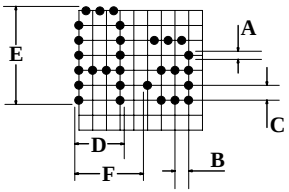


Fig. 19 Font format for 15 CPI

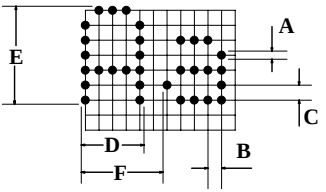


Fig. 20 Font format for 12 CPI and 8 CPI

The specifications for each character size are listed in the following table:

Character size	**15 CPI**	**12 CPI**	**8 CPI**
Font type	7 x 9 half dot	5 x 9 full dot	5 x 9 pulse 3 full dot
For 3.25” and 3.0” paper:			
Max # of columns	40	33	22
Total # of dots / row	200	198	132
Print area (horizontally)	65.7 mm	65.0 mm	64.8 mm
For 2.25” paper:			
Max # of columns	28	23	15
Total # of dots / row	140	138	90
Print area (horizontally)	45.9 mm	45.2 mm	44.1 mm
A – dot diameter	0.30 mm	0.30 mm	0.30 mm
B – dot spacing (H)	0.330 mm	0.330 mm	0.495 mm
C – dot spacing (V)	0.353 mm	0.353 mm	0.353 mm
D – character size (H)	1.29 mm	1.62 mm	2.28 mm
E – character size (V)	2.42 mm	2.42 mm	2.42 mm
F – column spacing	1.65 mm	1.98 mm	2.97 mm

COMMANDS

Friction type: 100% compatible to STAR SP312FV
EPSON compatible model is option.

Sprocket type: 100% compatible to STAR SP322S

EXTERNAL DIMENSIONS

Friction type: 125 mm (H) x 273 mm (D) x 174 mm (W)
(4.9" x 10.7" x 6.9")

Sprocket type: 155 mm (H) x 400 mm (L) x 180 mm (W)
(6.1" x 15.7" x 7.1")

WEIGHT

Friction type: 2.4 kg (net weight of printer alone).

OPERATING ENVIRONMENT

Temperature: 0° C to +50° C

Humidity : 10% to 90% RH (without condensation)

STORAGE ENVIRONMENT

Temperature: -20° C to +70° C

Humidity : 5% to 90% RH (without condensation)

MAINTENANCE

⛔ CAUTION:

Do not open the top cover and touch the print head immediately after printing, because the print head may be very hot.

CLEANING

- To clean the dust, paper particles, or dirt on and in the printer:
  Use a vacuum cleaner to clean thoroughly.
  Remove any pieces of paper from the paper path.
- To wipe off stains:
  Use a clean soft dry cloth to wipe off stains.
  If the stains can not be wiped off using the dry cloth, use a neutral detergent.

⛔ CAUTION:

To avoid damaging the printer, do not use benzene, benzine, alcohol, thinner, trichloroethylene, or ketone-based solvents on the printer's plastic and rubber components.

PAPER JAM

- Turn off the printer.
- Open the top cover after the print head cools down.
- Cut the paper roll from the paper guide with a pair of scissors.
- Turn the printer power back to on.
- Press the FEED switch to forward the paper out of the paper guide. Engage mechanical help like tweezers or manual pull if necessary.

CAUTION:

Remove the remaining paper in a forward direction. Do not pull it backwards.

- Clean the paper path when necessary.
- Reload the paper as instructed in “INSTALLATION”.
- Press the on-line switch to get the printer ready.

TROUBLE SHOOTING

If any of the following errors is detected while the printer is operating, the printer halts and $\overline{\text{ERROR}}$ signal turns to “LOW” level.

1. Mechanical errors
   - Motor lock
   - Defective of timing detector (signal not issued)
   - Abnormal home position check

   To reset the emergency suspension, rectify the cause of trouble & adopt one of the following 2 methods.
   - Turn the printer power off and on again.
   - Push “ON LINE” switch.

   The RAM is not cleared immediately when power is turned OFF. Printing resumes from the line being printed when the mechanism stopped if the error is corrected immediately.

2. CPU error

   If CPU goes erratic due to external noise, the printer halts, treating it as CPU error. Normal operation can be resumed by turning ON the power supply again, but the data contained in RAM gets cleared.

3. RAM Check Function

   Before self printing and when clearing the buffer, a RAM check is performed.

CONTROL CODES

STAR COMPATIBLE MODE

Control Codes for Character Setting

Control Codes	Hex Codes	Function
ESC R "*n*"	<1B> <52> <*n*>	Select international character set
ESC 6	<1B> <36>	Select IBM character set #2
ESC 7	<1B> <37>	Select IBM character set #1
ESC M	<1B> <4D>	Select 15 CPI character size
ESC P	<1B> <50>	Select 12 CPI character size
ESC :	<1B> <3A>	Select 8 CPI character size
SO ESC W 1 ESC W <1>	<0E> <1B> <57> <31> <1B> <57> <01>	Select expanded character mode
DC4 ESC W 0 ESC W <0>	<14> <1B> <57> <30> <1B> <57> <00>	Cancel expanded character mode
ESC E	<1B> <45>	Select emphasized print mode
ESC F	<1B> <46>	Cancel emphasized print mode
ESC - 1 ESC - <1>	<1B> <2D> <31> <1B> <2D> <01>	Select underline mode
ESC - 0 ESC - <0>	<1B> <2D> <30> <1B> <2D> <00>	Cancel underline mode
ESC _ 1 ESC _ <1>	<1B> <5F> <31> <1B> <5F> <01>	Select overline mode
ESC _ 0 ESC _ <0>	<1B> <5F> <30> <1B> <5F> <00>	Cancel overline mode
ESC 4	<1B> <34>	Select highlighted print mode
ESC 5	<1B> <35>	Cancel highlighted print mode
SI	<0F>	Select inverted print mode
DC2	<12>	Cancel inverted print mode

Control Codes for Line Spacing

Control Codes	Hex Codes	Function
LF	<0A>	Line feed
CR	<0D>	Line feed (same as LF)
ESC z 1 ESC z <1>	<1B> <7A> <31> <1B> <7A> <01>	Set 1/6 inch line feed
ESC 0	<1B> <30>	Set 1/8 inch line feed
ESC a "*n*"	<1B> <61> <*n*>	Feed paper *n* lines

Control Codes for Page Layout

Control Codes	Hex Codes	Function
FF	<0C>	Page feed (form feed)
ESC C "*n*"	<1B> <43> <*n*>	Set page length at *n* lines
ESC C <0> "*n*"	<1B> <43> <00> <*n*>	Set page length at *n* inches
VT	<0B>	Execute vertical tab
ESC B "*n1*"…"*nk*" <0>	<1B> <42> <*n1*>…<*nk*> <00>	Set vertical tab positions
ESC N "*n*"	<1B> <4E> <*n*>	Set bottom margin
ESC O	<1B> <4F>	Cancel bottom margin
ESC I "*n*"	<1B> <6C> <*n*>	Set left margin
ESC Q "*n*"	<1B> <51> <*n*>	Set right margin
HT	<09>	Execute horizontal tab
ESC D "*n1*" "*n2*"	<1B> <44> <*n1*> <*n2*>	Set horizontal tab positions

Control Codes for Graphics Printing

Control Codes	Hex Codes	Function
ESC 1	<1B> <31>	Set 7/72 inch line feed
ESC A "*n*"	<1B> <41> <*n*>	Define *n*/72 inch line feed
ESC 2	<1B> <32>	Set *n*/72 inch line feed
ESC J "*n*"	<1B> <4A> <*n*>	One time line feed of *n*/72 inch
ESC z 0 ESC z <0>	<1B> <7A> <30> <1B> <7A> <00>	Set 1/12 inch line feed
ESC y "*n*"	<1B> <79> <*n*>	Set n/144 inch line feed
ESC 3 "*n*"	<1B> <33> <*n*>	Set n/216 inch line feed simulation
ESC K "*n1*" <0>	<1B> <4B> <*n*> <00>	8 dot single density bit image
ESC L "*n1*" "*n2*"	<1B> <4C> <*n1*> <*n2*>	8 dot double density bit image
ESC h 1 ESC h <1>	<1B> <68> <31> <1B> <68> <01>	Select vertical expanded character mode
ESC h 0 ESC h <0>	<1B> <68> <30> <1B> <68> <00>	Cancel vertical expanded character mode

Control Codes for Download Characters

Control Codes	Hex Codes	Function
ESC & <0> "*n1*" "*n2*"	<1B> <26> <00> <*n1*> <*n2*>	Definition of down load characters
ESC % 1 ESC % <1>	<1B> <25> <31> <1B> <25> <01>	Enable download character set
ESC % 0 ESC % <0>	<1B> <25> <30> <1B> <25> <00>	Disable download character set

Control Codes for Peripheral Units

Control Codes	Hex Codes	Function
ESC BEL "*n1*" "*n2*"	<1B> <07> <*n1*> <*n2*>	Adjust drive pulse width for peripheral unit 1
BEL	<07>	Deferred drive command for peripheral unit 1
FS	<1C>	Immediate drive command for peripheral unit 1
EM SUB	<19> <1A>	Immediate drive command for peripheral unit 2

Other Control Codes

Control Codes	Hex Codes	Function
RS	<1E>	Sound buzzer
CAN	<18>	Cancel print data in buffer
DC3	<13>	Select deselect mode
DC1	<11>	Set select mode
ESC U 1 ESC U <1>	<1B> <55> <31> <1B> <55> <01>	Select uni-directional print mode
ESC U 0 ESC U <0>	<1B> <55> <30> <1B> <55> <00>	Select bi-directional print mode
ESC @	<1B> <40>	Initialize printer
GS "*data*" LF	<1D> "*data*" <0A>	Select validation printing of *data*
ENQ	<05>	Enquiry
STX	<02>	Enter STX-ETX mode
ETX	<03>	Terminate STX-ETX mode

EPSON Emulation Mode

Basic Reference

PP-3000 Series Mini Printer User's Guide.

Hardware Modification Required

Refer to page 4 - 2 Fig. 17, the BIOS at U8 should be changed.

Reference Epson Models Emulated

EPSON TM-300 series.

Character Size/Font Matrices

Refer to page 5 - 4, the 8 CPI character size (5 x 9 pulse 3 full dot mode) is not applicable for EPSON emulation.

Unsupported Control Codes:

Following EPSON control codes are not supported in PP-300E series due to hardware difference:

Control Codes	Function
ESC <	Return home
ESC c 3	Select paper sensor(s) for “paper-out” output signal
ESC c 4	Select paper sensor(s) to stop printing
ESC i	Partial cut (leave 1 point)
ESC m	Partial cut (leave 3 points)
ESC r	Select print color

Supported Control Codes:

NOTES:

① Default character spacing for 7 x 9 font is 3 dots, for 5 x 9 is 2 dots. These values are the minimum settings. In 5 x 9 font, no odd number spacing is allowed, or it will be automatically decreased.

② Font select: 1⇒ 7 x 9; 0⇒ 5 x 9.

③ 7 x 9 font is recommended in defining user-define characters. When original 9 x 9 characters are downloaded under 5 x 9 font printing mode, the characters will be automatically transferred to 5 x 9 by removing the half-dot bits.

④ Internatioal character *n* in hex code:
<00>⇒USA, <01>⇒France, <02>⇒Germany, <03>⇒England,
<04>⇒Denmark, <05>⇒Sweden, <06>⇒Italy, <07>⇒Spain,
<08>⇒Japan, <09>⇒Norway, <0A>⇒Denmark II, <0B>⇒Croatia.

⑤ Character table *n* in hex code:
<00>⇒USA&Europe, <01>⇒IBM 1, <02>⇒IBM 2, <03>⇒JAPAN.

⑥These control codes are applicable in serial interface only.

Control Codes	Hex Codes	Function
HT	<09>	Horizontal tab
LF	<0A>	Print and line feed
CR	<0D>	Print and carriage return
ESC SP *"n"* ①	<1B> <20> <*n*>	Set right side character spacing
ESC ! *"n"* ②	<1B> <21> <*n*>	Set printer mode (Font select)
ESC % *"n"*	<1B> <25> <*n*>	Set/cancel the user-defined character set
ESC & *"y" "c1" "c2"* ["*x*" "*d1*" ... "*d(yxx)*"]$^{c2-c1+1}$ ③	<1B> <26> <*y*> <*c1*> <*c2*> [<*x*> <*d1*> ... <*d(yxx)*>]$^{c2-c1+1}$	Define user-defined character set (max. 10 characters)
ESC * *"m" "nL" "nH"* ["*d*"]^{k}	<1B> <2A> <*m*> <*nL*> <*nH*> [<*d*>]^{k}	Select bit image mode
ESC 2	<1B> <32>	Set 1/6 inch line space
ESC 3	<1B> <33> "	Set line spacing
ESC @	<1B> <40>	Initialize printer
ESC D ["*n*"]^{k} NUL	<1B> <44> [<*n*>]^{k} <00>	Set horizontal tab positions
ESC J *"n"*	<1B> <4A> <*n*>	Print and feed paper
ESC R *"n"* ④	<1B> <52> <*n*>	Select an international character set
ESC U *"n"*	<1B> <55> <*n*>	Turn uni-directional printing mode on/off
ESC c 5 *"n"*	<1B> <63> <35> <*n*>	Enable/disable panel button
ESC d *"n"*	<1B> <64> <*n*>	Print and feed ***n*** lines
ESC p *"n" "t1" "t2"*	<1B> <70> <*n*> <*t1*> <*t2*>	Generate pulse (peripheral device)
ESC t ⑤	<1B> <74>	Select character code table
ESC {	<1B> <7B>	Turn upside-down printing mode on/off
ESC u ⑥	<1B> <73>	Transmit peripheral device status
ESC v ⑥	<1B> <76>	Transmit paper sensor status
ESC = *"n"* ⑥	<1B> <3D> <*n*>	Select peripheral device

APPENDIX

Q & A

Q.: Are all technical aspects described in this manual applicable throughout the PP-3000 product series?

A.: This could be true for most of the case. However, for some oriental language version of this family, some specific feature such as drive command for peripheral unit 2 could be absent.

Q.: Why the printing is not clear when printing on multifold auto copy paper:

A.: Open the top cover, take the ribbon cartridge out, find the adjust lever under the upper housing behind the control panel area. Adjust the lever to achieve proper imprint as recommended in the note on page 3 – 5 of this manual.

Q.: How to use the different interface say RS422?

A.: First of all, the printer should be modified to the RS422 version, which requires removal of U3 and installation of U2 as indicated on page 4 – 3 of this manual. The jumpers JP1 and JP2 have to be set in the way that pins 2 – 3 short. Please note that the orientation of these two jumpers are reversed to the drawing given in Fig. 17 of this manual if the PCB version of the printer reads "POSIFLEX BPRT001B-TJ". Connect the 9 pin connector (CN4) through a specific cable to the RS-422 I/O port of the computer. The connector pin definitions of the 9 pin connector for RS-422 are listed as following:

PIN #	1	2	3	4	5	6	7	8	9
DEF.	RD +	RD -	CS +	CS -	GND	SD +	SD -	RS +	RS -

DIP SW 3 – 4 and DIP SW 4 – 1 to 4 – 4 should be adjusted to match the software command as illustrated in page 4 – 6 of this manual.

Q.: How to convert a serial printer into a parallel printer for this printer series, and vice versa?

A.: Converting from serial to parallel is easier in PP-3000 series. Change the jumper settings and turn off DIP SW 3 and DIP SW 4 per page 4 – 4 of this manual, set DIP SW1 and DIP SW 2 per page 4 – 7 according to the application requirement, remove the serial cable on the 9 pin connector (CN4). Connect the 25 pin connector (CN10) through a 25 M to 25 F cable to the LPT port of a computer. The PP-3000S then becomes PP-3000C.

To convert to serial from parallel takes not only all the opposite modifications of all the above, but also the implementation of a MAX232A chip at position U3.

Q.: How to use the printer under WIN95 environment?

A.: Please download from our web station the proper driver. Address for download is: http://www.posiflex.com.tw/english/download.htm

Q.: How to switch from the Star compatible mode to Epson emulation mode?

A.: As indicated in this manual that the Epson emulation command mode is an option. However, it does not coexist with the Star compatible mode. You have to order for the right BIOS and replace the U8 on the printer control board as indicated in page 4 – 2 of this manual.